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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/420,912	10/20/1999	JON ALLEN FORD	CASE-1	3426

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EXAMINER
HECK, MICHAEL C

ART UNIT	PAPER NUMBER
3623	

DATE MAILED: 04/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/420,912	FORD, JON ALLEN	
	Examiner	Art Unit	
	Michael C. Heck	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *09 February 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24 and 27-61* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24 and 27-61* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *02/09/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Final Office Action is responsive to applicant's amendment filed 09 February 2005. Applicant amended claims 1-3, 5, 9, 11, 13-15, 17, 21, 23, 29, 31-35, 44, 56 and 60. Currently, claims 1-24 and 27-61 are pending.

Response to Amendment

2. The objection to the Drawings in the 27 December 2004 Office Action is withdrawn in response to the applicant's amendment to the Specification.

3. The objection to the Specification in the 27 December 2004 Office Action is withdrawn in response to the applicant's amendment to the Specification.

4. The objection to the Claims in the 27 December 2004 Office Action is withdrawn in response to the applicant's amendment to Claim 9.

5. The 35 U.S.C. § 112, second paragraph, rejection in the 27 December 2004 Office Action for claims 32-35 is withdrawn in response to the applicant's amendment to the Claims.

6. The 35 U.S.C. § 101 rejection in the 27 December 2004 Office Action for claims 1-24 and 60 is withdrawn in response to the applicant's amendment to the Claims.

7. The 35 U.S.C. § 101 rejection in the 27 December 2004 Office Action for claims 32-35 is withdrawn in response to the applicant's amendment to the Claims, however, the amendment created new issues. Please see the 35 U.S.C. § 101 rejection below.

Response to Arguments

8. Applicant's arguments filed 09 February 2005 for the 35 U.S.C. § 102(b) rejection, which is based upon a public use or sale of the invention, have been fully considered but they are not persuasive. The applicant asserts the CentreVu® Advocate and CentreVu® Virtual Routing did not embody or teach the claimed invention, as is made evident by the enclosed documents that were requested by the Examiner. The Examiner requested that in order for the examiner to properly consider patentability of the claimed invention under 35 U.S.C. 102(b), additional information regarding this issue be supplied. The request was for the operations manual for CentreVu® Advocate and CentreVu® Virtual Routing, specifically the five predictive algorithms. The applicant responded to the additional information request of the Examiner by supplying the CentreVu® Advocate User Guide and the DEFINITY® Enterprise Communication Server Release 6 Call Vectoring/Expert Agent Selection (EAS) Guide. The applicant indicated the term "Virtual Routing" refers to look-ahead interflow and best-service routing, both of which are described in the EAS Guide. The five predictive algorithms were not addressed nor supplied.

Regarding the assertion that CentreVu® Advocate and CentreVu® Virtual Routing did not embody or teach the claimed invention, the Examiner respectfully disagrees. Business Editors et al. (Business Editors et al., Lucent Technologies Unveils Breakthrough Call Center Software That Improves Customer Care, Increases Sales and Reduces Costs, Business Wire, 4 February 1998 [PROQUEST]) teach CentreVu® Advocate and CentreVu® Virtual Routing of Lucent Technologies, which is an expert system software developed by Bell Laboratories that uses five predictive algorithms to

solve the primary problem all call centers face: How to simultaneously provide individual customer care faster, leverage agent expertise and time more effectively, increase revenue, reduce operating expenses, and simplify call center management. CentreVu® Advocate simultaneously looks at the needs of callers, their potential business value and desire to wait, analyzes the skill of the agents and predicts how soon they will likely become available; then decides which agent should be matched to callers, regardless of their position in the queue. CentreVu® Advocate and CentreVu® Virtual Routing automatically anticipate, control and optimize the allocation of call center resources to minimize call wait times; reduce the number of abandoned calls; lower network costs; and balance workloads while matching callers with the agents who can best serve their needs. CentreVu® Advocate makes real-time decisions – the best decisions every time – based on a business's objectives for the various levels of care it wants to give customers, how it wants to optimize agent skills and time, its sales goals, and the expense it is willing to allocate to meet those objectives. Once these objectives are programmed into the software, CentreVu® Advocate will consider all variables – the time a caller will likely wait, the media through which the call has come in (phone, Internet, fax, video, e-mail), when the agent with the best skill set for the customer will become available, tiers of service, call volume, sales goals – to determine the best and fairest use of the agent and the best call to take that will bring the greatest value to the business at that time (Para 2, 3, and 7-9).

The CentreVu® Advocate User Guide (CentreVu® Advocate User Guide, Issue 1, May 1998, Copyright© 1998 Lucent Technologies) reinforces the Examiner's position.

The CentreVu® Advocate User Guide teaches there are two situations in which CentreVu® Advocate features are used: one or more agents available for the incoming call, and one or more queues with calls when an agent becomes available. A call selection occurs any time that more calls are coming into a call center than there are agents to handle them. Conversely, an agent selection occurs any time there are more available agents than calls coming into the call center. This situation gives the opportunity to route calls to the most preferential agent in a particular skill (Guide: p. 1-1). Percent Allocation allows you to assign a percentage of an agent's time to each of their assigned skills to total 100% of their staffed time. Percent Allocation compares an agent's work time in each assigned skill, expressed as a percentage of staffed time, against an administered percentage allocation for each of the agent's assigned skills to determine which call to select when an agent becomes available. After accessing an agent entry, that agent's call handling preferences can be administered to be Percent Allocation. Percent Allocation is designed to solve the problem of specifying the amount of time agents will spend in each of their skills. With Percent Allocation, calls are selected to best match the agent's assigned skill mix (Guide: p. 1-4). When call selection override is on, agents will receive calls based on their assigned call handling preference as long as the skills are in an under-threshold state (Guide: p. 1-7). When call selection override is off, agents always handle calls based on their assigned call handling preference (Guide: p. 1-8). Call Center administrators may have many different objectives for matching callers with agents. In order to meet these objectives, call centers often have individual agents assigned to many different skills. Some

general call center business needs include: match caller with most qualified agent, build stronger relationships with some customers, improve overall call center efficiency, help schedule agents with multiple skills, treat agents the same, treat some agents differently, improve agent fairness, and automate supervisor actions (Guide: p. 2-24 to 2-26). CentreVu® Advocate features are designed to help achieve the goals that are most important. Objectives (i.e., achieving business objectives, controlling average speed of answer (ASA), controlling abandonments, controlling percent in service level, and managing agents) have goals assigned to them (i.e., maximizing revenues, increasing customer satisfaction, increasing agent satisfaction, equalizing percent in service level across skills, control the amount of time agents spend in each of their skills, and evenly distribute the workload among all agents) (Guide: p. 2-31 to 2-38).

The applicant's specification identifies two conditions. Under resource surplus conditions, the arrangement determines those resources that possess skills needed by an available work item, for each determined resource determines both a business value of having the resource served the work item and a value to that resource of servicing the work item, and then selects the resource that has a best combined value of the business value and the value to the resource to serve the work item. Under work-item surplus conditions, the arrangement determines those available work items that need skills possessed by an available resource, for each determined work item determines both a business value of having that work item serviced by the resource and the value to that work item of being serviced by the resource, and then selects the work item that has a best combined value of the business value and the value to the work item to be

served by the resource (Specification, p. 2). A value to a resource is computed as a sum of products of each treatment of the resource and the weight of the treatment (Specification, p. 3). The resource treatment value (RTV) of a work item to resource match is a measure of how a resource is spending time compared with other resources, as well as individual resource goals (Specification, p. 6). This total time, along with a perspective new work item and percent allocation goals can be used to calculate whether handling this work item helps or hurts the resource in moving toward the allocation goal (Specification, p. 9). The applicant identified the percent allocation goal to relate to agent skills. The Examiner has interpreted treatment to be skill and the weight of the treatment to be percent allocation goal. Figure 3 also identifies resource fairness and relates resource fairness to a resource surplus condition.

The combination of Business Editors et al. and the CentreVu® Advocate User Guide strongly suggest a method of calculation that is used to meet the business and agent objectives and goals. For example, the call selection method to control the amount of time agents spend in each of their skills is percent allocation. With the percent allocation feature, the system allocates a percentage of an agent's work time to each of their skills where DEFINITY ECS will select a mix of calls that keeps the agent as close as possible to the percentage specified (Guide: p. 2-37). Please see the 35 U.S.C. 102(b) rejection below.

9. Applicant's arguments filed 09 February 2005 have been fully considered but they are not persuasive. As to the 35 U.S.C. § 102(b) rejection of claims 1, 28, 32 and 36, and the 35 U.S.C. § 103(a) rejections of claim 2-5, 6-8, 13-17, 30, 34, 37-43 and 48-

52, Applicant asserts the concern of the CentreVu® capability is the value to the business, and not value to the resource. In response, Business Editors clearly teaches a value to the resource and a value to the business and then correlates the two. Business Editors teach the simultaneous evaluation of the needs of the caller and the analysis of the skills of the agents to more fairly balance the workload of the agents while matching them to the best prospects for the business. CentreVu® Advocate will consider all variables to determine the best and fairest use of the agent and the best call to take that will bring the greatest value to the business at the time (Business Editors: Para 3 and 9). Those variables include when the agent with the best skill set for the customer will become available and sales goal. The Examiner asserts the value to the resource is a fair and balance workload and a business value is sales goal. The combination of a fair and balance workload and sales goal will bring the greatest value to the business. Please see the 35 U.S.C. § 102(b) and § 103(a) rejections below.

10. Applicant's arguments, see p. 34-35 and 36-38, filed 09 February 2005, with respect to claims 9-10 and 18-22 have been fully considered and are persuasive. The Examiner notes that claim 9 and 21 were amended. The 35 U.S.C. § 103(a) rejection of claims 9-10 and 18-22 has been withdrawn.

11. As to Claim 13, Applicant asserts the references do not render unpatentable the invention since the cost function is clearly a value (cost) to the business, and not a value to the work item of being serviced by a particular resource. In response, Walker et al. teach the method calculates a time dependent "cost function" for each job. This takes into account the penalty for failing to meet an agreed time. The penalty may be

a real monetary cost if compensation is payable to a customer for failures to meet a time, or a 'virtual' cost, e.g., damage to the companies reputation. The penalty is a time-dependent property (Walker et al.: col. 6, lines 53-63). Clearly a value (cost) is calculated for the work item (customer). Please see the 35 U.S.C. § 103(a) rejections below.

Claim Rejections - 35 USC § 101

12. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

13. **Claims 32-35** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The amendment of 09 February 2005 amended the claims to further limited the arrangement by stating, "wherein said effectors are implemented by processor". The applicant referenced the specification, p. 5, line 30 to p. 6, line 1 as support for the amendment. The specification states, "selection arrangement 106 comprises either an adjunct processor to the ACD or a control program residing in memory of the ACD and executing on a processor of the ACD", where ACD is an automatic communications distributor. Therefore, the Examiner has interpreted a processor as being defined in conventional terms, that is, to be the computational and control unit of a computer as in a central processing unit. Specifically, the central processing unit is the device that interprets and executes instructions. Claims 32-35 are directed to "an arrangement for selecting a resource for a work item" and "an arrangement for selecting a work item for a resource" with "an

effector for determining...". In the specification (p.4, lines 28-31) the applicant indicates the apparatus preferable includes an "effector" – any entity that effects the corresponding step, unlike means -- for each method step. The "effector", therefore, is an instruction or computer program capable of being executed by a computer. A computer program, without the computer-readable medium needed to realize the computer program's functionality is nonstatutory functional descriptive material. Please see MPEP 2106 IV.B.1.

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. **Claims 1-24 and 27-61** are rejected under 35 U.S.C. 102(b) based upon a public use or sale of the invention. Business Editors et al. (Business Editors et al., Lucent Technologies Unveils Breakthrough Call Center Software That Improves Customer Care, Increases Sales and Reduces Costs, Business Wire, 4 February 1998 [PROQUEST]) teach CentreVu® Advocate and CentreVu® Virtual Routing of Lucent Technologies, which is an expert system software developed by Bell Laboratories that uses five predictive algorithms to solve the primary problem all call centers face: How to simultaneously provide individual customer care faster, leverage agent expertise and time more effectively, increase revenue, reduce operating expenses, and simplify call

center management. CentreVu® Advocate simultaneously looks at the needs of callers, their potential business value and desire to wait, analyzes the skill of the agents and predicts how soon they will likely become available; then decides which agent should be matched to callers, regardless of their position in the queue. CentreVu® Advocate and CentreVu® Virtual Routing automatically anticipate, control and optimize the allocation of call center resources to minimize call wait times; reduce the number of abandoned calls; lower network costs; and balance workloads while matching callers with the agents who can best serve their needs. CentreVu® Advocate makes real-time decisions – the best decisions every time – based on a business's objectives for the various levels of care it wants to give customers, how it wants to optimize agent skills and time, its sales goals, and the expense it is willing to allocate to meet those objectives. Once these objectives are programmed into the software, CentreVu® Advocate will consider all variables – the time a caller will likely wait, the media through which the call has come in (phone, Internet, fax, video, e-mail), when the agent with the best skill set for the customer will become available, tiers of service, call volume, sales goals – to determine the best and fairest use of the agent and the best call to take that will bring the greatest value to the business at that time (Para 2, 3, and 7-9).

The CentreVu® Advocate User Guide (CentreVu® Advocate User Guide, Issue 1, May 1998, Copyright© 1998 Lucent Technologies) teaches there are two situations in which CentreVu® Advocate features are used: one or more agents available for the incoming call, and one or more queues with calls when an agent becomes available. A call selection occurs any time that more calls are coming into a call center than there

are agents to handle them. Conversely, an agent selection occurs any time there are more available agents than calls coming into the call center. This situation gives the opportunity to route calls to the most preferential agent in a particular skill (Guide: p. 1-1). Percent Allocation allows you to assign a percentage of an agent's time to each of their assigned skills to total 100% of their staffed time. Percent Allocation compares an agent's work time in each assigned skill, expressed as a percentage of staffed time, against an administered percentage allocation for each of the agent's assigned skills to determine which call to select when an agent becomes available. After accessing an agent entry, that agent's call handling preferences can be administered to be Percent Allocation. Percent Allocation is designed to solve the problem of specifying the amount of time agents will spend in each of their skills. With Percent Allocation, calls are selected to best match the agent's assigned skill mix (Guide: p. 1-4). When call selection override is on, agents will receive calls based on their assigned call handling preference as long as the skills are in an under-threshold state (Guide: p. 1-7). When call selection override is off, agents always handle calls based on their assigned call handling preference (Guide: p. 1-8). Call Center administrators may have many different objectives for matching callers with agents. In order to meet these objectives, call centers often have individual agents assigned to many different skills. Some general call center business needs include: match caller with most qualified agent, build stronger relationships with some customers, improve overall call center efficiency, help schedule agents with multiple skills, treat agents the same, treat some agents differently, improve agent fairness, and automate supervisor actions (Guide: p. 2-24 to

2-26). CentreVu® Advocate features are designed to help achieve the goals that are most important. Objectives (i.e., achieving business objectives, controlling average speed of answer (ASA), controlling abandonments, controlling percent in service level, and managing agents) have goals assigned to them (i.e., maximizing revenues, increasing customer satisfaction, increasing agent satisfaction, equalizing percent in service level across skills, control the amount of time agents spend in each of their skills, and evenly distribute the workload among all agents) (Guide: p. 2-31 to 2-38).

Business Editors et al. and the CentreVu® Advocate User Guide fail to teach all the features of the claimed invention, however, Business Editor et al. and the CentreVu® Advocate User Guide teach the basic features of the independent claims, that is, determining available resources (Business Editors et al.: Para 3, Business Editors et al. teach CentreVu® Advocate analyzes the skill of the agents and predicts how soon they will likely become available, CentreVu® Advocate User Guide: p. 2-31, CentreVu® Advocate User Guide teaches Expert Agent Distribution (EAD) selects the most highly skilled agent available to answer each call.), determining available work-items (Para 3, Business Editors et al. teach CentreVu® Advocate looks at the needs of the caller. CentreVu® Advocate User Guide: p.2-31, CentreVu® Advocate User Guide teaches that as the number of calls in queue increases for these critical skills, DEFINITY ECS will preferentially select calls in these skills to keep the maximum wait time low.), determine a business value of having the resource service the work item (Para 3, Business Editors et al. teach CentreVu® Advocate simultaneously looks at the needs of callers, their potential business value and desire to wait. CentreVu® Advocate

User Guide: p.2-31, CentreVu® Advocate User Guide teaches maximizing revenue.), determining a value to the resource of servicing the work item (Para 9, Business Editors et al. teach CentreVu® Advocate will consider all variables to determine the best and fairest use of the agent and the best call to take that will bring the greatest value to he business at that time. CentreVu® Advocate User Guide: p. 1-4, CentreVu® Advocate User Guide teaches that Percent Allocation allows you to assign a percentage of an agent's time to each of their assigned skills to total 100% of their staffed time. After accessing an agent entry, that agent's call handling preferences can be administered to be Percent Allocation. Percent Allocation is designed to solve the problem of specifying the amount of time agents will spend in each of their skills. With Percent Allocation, calls are selected to best match the agent's assigned skill mix.), and selecting a determined resource to serve the work item (Para 3, Business Editors et al. teach CentreVu® Advocate then decides which agents should be matched to the callers, regardless of their position in queue. CentreVu® Advocate User Guide: p. 2-32, CentreVu® Advocate User Guide teaches that by selecting the most highly skilled agent available to answer each call, EAD allows you to give customers the best possible service.).

The Examiner notes that the Applicant responded to the additional information request of the Examiner by supplying the CentreVu® Advocate User Guide and the DEFINITY® Enterprise Communication Server Release 6 Call Vectoring/Expert Agent Selection (EAS) Guide. The applicant indicated the term "Virtual Routing" refers to look-ahead interflow and best-service routing, both of which are described in the EAS Guide.

The five predictive algorithms requested were not addressed nor supplied. Therefore, the request for the five predictive algorithms with a definition of each variable used in the algorithms is considered outstanding in order for the Examiner to properly consider patentability of the claimed invention under 35 U.S.C. § 102(b).

Claim Rejections - 35 USC § 102

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

17. **Claim 1, 28, 32 and 36** are rejected under 35 U.S.C. 102(b) as being anticipated by Business Editors et al. (Business Editors et al., Lucent Technologies Unveils Breakthrough Call Center Software That Improves Customer Care, Increases Sales and Reduces Costs, Business Wire, 4 February 1998 [PROQUEST]). Business Editors et al. disclose an arrangement for resources and work-items selection comprising:

- **[Claim 1]** determining by a processor available resources that possess skills needed by the work item (Para 2 and 3, Business Editors et al. teach CentreVu® Advocate and CentreVu® Virtual Routing, the expert system software developed by Bell Laboratories uses five predictive algorithms to solve the primary problem all call centers face: How to simultaneously provide individual customer care faster, leverage agent expertise and time more effectively, increase revenue, reduce operating expenses and simplify call center management. CentreVu® Advocate simultaneously looks at the needs of callers and analyzes the skill of the agents and predicts how soon they will likely become available. The Examiner interprets that the system software is executed using a processor.);

- for each of the determined resources, determining by a processor a business value of having the resource service the work item, the business

value being a measure of qualification of the resource for servicing the work item based on skills of the resource and skill requirements of the work item (Para 2 and 9, Business Editors et al. teach CentreVu® Advocate and CentreVu® Virtual Routing, the expert system software developed by Bell Laboratories uses five predictive algorithms to solve the primary problem all call centers face: How to simultaneously provide individual customer care faster, leverage agent expertise and time more effectively, increase revenue, reduce operating expenses and simplify call center management. CentreVu® Advocate will consider all variables --the time a caller will likely wait, the media through which the call has come in (phone, Internet, fax, video, e-mail), when the agent with the best skill set for the customer will become available, tiers of service, call volume, sales goals – to determine the best and fairest use of the agent and the best call to take that will bring the greatest value to the business at that time. The examiner interprets a business value is determined. The Examiner interprets that the system software is executed using a processor.);

- for each of the determined resources, determining by a processor a value to the resource of servicing the work item, the value to the resource being a measure of how serving the work item by the resource helps or hurts goals of the individual resource, wherein the goals of the resource include per-skill time-allocation goals of the resource (Para 2, 3 and 9, Business Editors et al. teach CentreVu® Advocate and CentreVu® Virtual Routing, the expert system software developed by Bell Laboratories uses five predictive algorithms to solve the primary problem all call centers face: How to simultaneously provide individual customer care faster, leverage agent expertise and time more effectively, increase revenue, reduce operating expenses and simplify call center management. This approach shifts the paradigm of the call center to a model that – for the first time – more fairly balances the workload of the agents while matching them to the best prospects for the business. CentreVu® Advocate will consider all variables -the time a caller will likely wait, the media through which the call has come in (phone, Internet, fax, video, e-mail), when the agent with the best skill set for the customer will become available, tiers of service, call volume, sales goals – to determine the best and fairest use of the agent and the best call to take that will bring the greatest value to the business at that time. The Examiner interprets a resource value is determined in order to determine the greatest value to the business. The Examiner interprets that the system software is executed using a processor.); and

- selecting by a processor a determined resource that has a best combined value of the business value and the value to the resource, to serve the work item (Para 2 and 3, Business Editors et al. teach CentreVu® Advocate and CentreVu® Virtual Routing, the expert system software developed by Bell

> Laboratories uses five predictive algorithms to solve the primary problem all call centers face: How to simultaneously provide individual customer care faster, leverage agent expertise and time more effectively, increase revenue, reduce operating expenses and simplify call center management. CentreVu® Advocate then decides which agents should be matched to the callers, regardless of their position in queue. The Examiner interprets that the system software is executed using a processor.).

Claims 28, 32, and 36 substantially recite the same limitations as that of claim 1 with the distinction of the recited method being an apparatus, an arrangement, and a computer readable medium. Hence the same rejection for claim 1 as applied above applies to claims 28, 32, and 36.

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19. **Claims 2-5 and 37-40** are rejected under 35 U.S.C. 103(a) as being unpatentable over Business Editors et al. (Business Editors et al., Lucent Technologies Unveils Breakthrough Call Center Software That Improves Customer Care, Increases Sales and Reduces Costs, Business Wire, 4 February 1998 [PROQUEST]) in view of Bushey et al. (U.S. Patent 6,389,400). The Examiner notes that Business Editors et al. teach CentreVu® Advocate and CentreVu® Virtual Routing, the expert system software developed by Bell Laboratories uses five predictive algorithms to solve the primary problem all call centers face: How to simultaneously provide individual customer care

faster, leverage agent expertise and time more effectively, increase revenue, reduce operating expenses and simplify call center management. The Examiner interprets that the system software is executed using a processor (Business Editors et al.: Para 2). As to claim 2, Business Editors et al. disclose an arrangement for resources and work-items selection but fails to teach determining by processor a business value comprises determining by processor the business value weighted by a business value weight corresponding to the work item; determining by processor a value to the resource comprises determining by processor the value to the resource weighted by a resource value weight corresponding to the work item; and selecting by processor comprises selecting by processor a determined resource that has a best combined value of the weighted business value and the weighted value to the resource. Bushey et al. teach the behavioral model of the customer is calculated from a detailed profile of the customer's needs, task objective, sales preferences, and expectations for satisfaction. Each task objective attribute and each customer expectations for satisfaction attribute are assigned a weighting value based on a relative importance of each attribute. The behavioral model of the at least two agents is calculated from a detailed profile of the at least two agents' sales strategies, customer service behaviors, and sales performance. Each sales strategies attribute, customer service behavior attribute, and sales performance attribute is assigned a weighting value based on a relative importance of each attribute. A list of optimal agents is generated based on the match scores of the at least two agents that are above an optimal threshold. The request from the customer is routed to an available agent on the list of optimal agents (col. 2,

lines 53-61, col. 3, lines 56-64, and col. 4, lines 11-16). It would have been obvious to one of ordinary skill in the art at the time of the applicant's inventions to include the optimizing calculations of Bushey et al. with the teachings of Business Editors et al. since Business Editors et al. teach CentreVu® Advocate simultaneously looks at the needs of callers, their potential business value and desire to wait; analyzes the skills of the agents and predicts how soon they will likely become available; then decides which agent should be matched to callers, regardless of their position in queue (Para 3). Maximizing call center ROI is a goal of company management. The optimization model of Bushey et al. increases customer satisfaction and improves performance at the call center (Bushey et al.: col. 2, lines 37-43). CentreVu® Advocate and CentreVu® Virtual Routing solve the primary problem all call centers face: How to simultaneously provide individual customer care faster, leverage agent expertise and time more effectively, increase revenue, reduce operating expenses, and simplify call center management (Business Editors et al.: Para 2). Therefore, utilizing the optimization model of Bushey et al. with CentreVu® Advocate and CentreVu® Virtual Routing of Business Editors et al. will improve call center ROI.

- **[Claim 3]** determining by processor a business value comprises determining by processor a weighted business value as a product of (a) the business value weight corresponding to the work item and (b) a sum of products of a level of each said needed skill of the resource and a weight of said needed skill of the work item (Bushey et al.: col. 2, lines 53-56, and col. 3, lines 56-59, col. 11, lines 5-17, Bushey et al. teach the behavioral model of the customer is calculated from a detailed profile of the customer's needs, task objective, sales preferences, and expectations for satisfaction. Each task objective attribute and each customer expectations for satisfaction attribute are assigned a weighting value based on a relative importance of each attribute. The absolute value of the agent attribute subtracted from the customer call attribute value is multiplied by the

weighting value associated with that particular attribute. This is performed for all attributes, and then the sum of the resulting values is subtracted from 100 to get the agent match score.); and

- determining by processor a value to the resource comprises determining by processor a weighted resource treatment value as a product of (c) a resource treatment weight corresponding to the work item and (d) a sum of products of each treatment of the resource and a weight of said treatment of the resource (Bushey et al.: col. 2, lines 57-61, and col. 3, lines 60-64, col. 11, lines 5-17, Bushey et al. teach the behavioral model of the at least two agents is calculated from a detailed profile of the at least two agents' sales strategies, customer service behaviors, and sales performance. Each sales strategies attribute, customer service behavior attribute, and sales performance attribute is assigned a weighting value based on a relative importance of each attribute. The absolute value of the agent attribute subtracted from the customer call attribute value is multiplied by the weighting value associated with that particular attribute. This is performed for all attributes, and then the sum of the resulting values is subtracted from 100 to get the agent match score.).

- **[Claim 4]** the sums of products are scaled sums, and the treatments are scaled treatments (Bushey et al.: col. 11, lines 5-17, Bushey et al. teach the absolute value of the agent attribute subtracted from the customer call attribute value is multiplied by the weighting value associated with that particular attribute. This is performed for all attributes, and then the sum of the resulting values is subtracted from 100 to get the agent match score. The examiner interprets the value of 0-100 to establish the scale.).

- **[Claim 5]** selecting by processor comprises selecting by processor the determined resource that has a highest sum of the weighted business value and the weighted resource treatment value (Bushey et al.: col. 4, lines 26-29, Bushey et al. teach the request from the customer is routed to an available agent with the highest match score when the wait time equals a maximum wait time.).

Claims 37-40 substantially recite the same limitations as that of claims 2-5 with the distinction of the recited method being a computer readable medium. Hence the same rejection for claim 2-5 as applied above applies to claims 37-40.

20. **Claims 6-8, 13-17, 30, 34, 41-43 and 48-52** are rejected under 35 U.S.C. 103(a) as being unpatentable over Business Editors et al. (Business Editors et al., Lucent Technologies Unveils Breakthrough Call Center Software That Improves Customer Care, Increases Sales and Reduces Costs, Business Wire, 4 February 1998 [PROQUEST]) and Bushey et al. (U.S. Patent 6,389,400) in view of Walker et al. (U.S. Patent 5,963,911). As to claim 6, Business Editors et al. and Bushey et al. disclose an arrangement for resources and work-items selection but fail to teach the resource treatments of a resource comprise a time since the resource became available and a time that the resource has not spent serving work items. Walker et al. teach determining a time at which each job is required to be performed and if the technician is likely to complete the allocated job and arrive at his finish before his end of the day time he will incur idle time or time with "nothing to do" (Walker et al.: col. 1, lines 61-62 and col. 20, lines 47-49). It would have been obvious to one of ordinary skill in the art to incorporate the time measures of Walker et al. with the teachings of Business Editors et al. and Bushey et al. since Business Editors et al. teach balancing the workload of the agents while matching them to the best prospects for the business (Business Editors et al.: Para 3). Time is money. CentreVu® Advocate and CentreVu® Virtual Routing solve the primary problem all call centers face: How to simultaneously provide individual customer care faster, leverage agent expertise and time more effectively, increase revenue, reduce operating expenses, and simplify call center management (Business Editors et al.: Para 2). Optimizing the allocation of resources produces the smallest total projected cost, therefore, saving both time and money.

- **[Claim 7]** the treatments of the resource further comprise a measure of an effect that serving of the work item would have on a goal of the resource (Business Editors et al.: Para 2, Business Editors et al. teach more CentreVu® Advocate fairly balances the workload of the agents while matching them to the best prospect for the business.).

- **[Claim 8]** the measure of the effect comprises a difference between (a) a distance of an actual allocation of worktime of the resource among skills from a goal allocation of the worktime of the resource among the skills and (b) a distance of an estimated allocation of the worktime of the resource among the skills if the resource serves the work item from the goal allocation (Walker et al.: col. 3, lines 17-20, Walker et al. teach a time-dependent cost function to each job, the fact that the different resources would perform it at different times, and the consequences of this, such as failure to meet an agreed time, can be taken into account. The examiner interprets that an agreed time is an estimate and performing at different times is an actual.).

- **[Claim 13]** determining by processor available work items that need skills possessed by the resource (Para 2 and 3, Business Editors et al. teach CentreVu® Advocate and CentreVu® Virtual Routing, the expert system software developed by Bell Laboratories uses five predictive algorithms to solve the primary problem all call centers face: How to simultaneously provide individual customer care faster, leverage agent expertise and time more effectively, increase revenue, reduce operating expenses and simplify call center management. CentreVu® Advocate simultaneously looks at the needs of callers and analyzes the skill of the agents and predicts how soon they will likely become available. The Examiner interprets that the system software is executed using a processor.);

- for each of the determined work items, determining by processor a business value of having the resource service the work item, the business value being a measure of qualification of the resource for servicing of the work item based on skills of the resource and skill requirements of the work item (Bushey et al.: col. 2, lines 53-56, and col. 3, lines 56-59, col. 11, lines 5-17, Bushey et al. teach the behavioral model of the customer is calculated from a detailed profile of the customer's needs, task objective, sales preferences, and expectations for satisfaction. Each task objective attribute and each customer expectations for satisfaction attribute are assigned a weighting value based on a relative importance of each attribute. The absolute value of the agent attribute subtracted from the customer call attribute value is multiplied by the weighting value associated with that particular attribute. This is performed for all attributes, and then

the sum of the resulting values is subtracted from 100 to get the agent match score.);

- for each of the determined work items, determining by processor a value to the work item of being serviced by the resource, the value to the work item being a measure of how the work item is meeting goals of the individual work item, wherein the goals of the work item include how long the work item has been waiting for service, how long the work item may have to wait for service, and how much the work item has exceeded its target wait time (Walker et al.: col. 6, lines 53-63, Walker et al. teach the method calculates a time dependent "cost function" for each job, This takes into account the penalty for failing to meet an agreed time. The penalty may be a real monetary cost if compensation is payable to a customer for failures to meet a time, or a 'virtual' cost, e.g., damage to the companies reputation. The penalty is a time-dependent property. Bushey et al.: col. 14, lines 12-21, Bushey et al. teach customer wait time is based on the level of match between the customer and agent, the agent availability, and the amount of time the customer has been waiting. Factors that are considered at the service center include: (a) customer wait time, (b) match score, and (c) the avoidance of the customer abandoning their call.) ; and

- selecting by processor a determined work item that has a best combined value of the business value and the value to the work item to be served by the resource (Walker et al.: col. 2, lines 52-61, Walker et al. teach assigning each job a cost function which is calculated as a function of the time at which the job will be performed, determining, for each possible combination of jobs with resources, the projected cost, dependent on the time at which each resource is forecast to be available and the value of the cost function for the respective job at that time, and determining the combination which produces the smallest total projected cost.).

- **[Claim 14]** determining by processor business value comprises determining by processor the business value weighted by a business value weight corresponding to the work item; determining by processor a value to the work item comprises determining by processor the value to the work item weighted by a work item value weight corresponding to the work item; and selecting by processor comprises selecting by processor a determined work item that has a best combined value of the weighted business value and the weighted value to the work item (Bushey et al.: Figure 6, col. 2, lines 53-61, col. 3, lines 56-64, and col. 4, lines 11-16, Bushey et al. teach a processor where the behavioral model of the customer is calculated from a detailed profile of the customer's needs, task objective, sales preferences, and expectations for satisfaction. Each task objective attribute and each customer expectations for satisfaction attribute are assigned a weighting

value based on a relative importance of each attribute. The behavioral model of the at least two agents is calculated from a detailed profile of the at least two agents' sales strategies, customer service behaviors, and sales performance. Each sales strategies attribute, customer service behavior attribute, and sales performance attribute is assigned a weighting value based on a relative importance of each attribute. A list of optimal agents is generated based on the match scores of the at least two agents that are above an optimal threshold. The request from the customer is routed to an available agent on the list of optimal agents).

- **[Claim 15]** determining by processor a business value comprises determining by processor a weighted business value as a product of (a) the business value weight corresponding to the work item and (b) a sum of products of a level of each said needed skill of the resource and a weight of said needed skill of the work item (Bushey et al.: Figure 6, col. 2, lines 53-56, and col. 3, lines 56-59, col. 11, lines 5-17, Bushey et al. teach a processor where the behavioral model of the customer is calculated from a detailed profile of the customer's needs, task objective, sales preferences, and expectations for satisfaction. Each task objective attribute and each customer expectations for satisfaction attribute are assigned a weighting value based on a relative importance of each attribute. The absolute value of the agent attribute subtracted from the customer call attribute value is multiplied by the weighting value associated with that particular attribute. This is performed for all attributes, and then the sum of the resulting values is subtracted from 100 to get the agent match score.); and

- determining by processor a value to the work item comprises a determining by processor a weighted work item treatment value as a product of (c) a work item treatment weight corresponding to the work item and (d) a sum of products of each treatment of the work item and a weight of said treatment of the work item (Bushey et al.: Figure 6, col. 2, lines 53-61, col. 3, lines 56-64, and col. 4, lines 11-16, Bushey et al. teach a processor where the behavioral model of the customer is calculated from a detailed profile of the customer's needs, task objective, sales preferences, and expectations for satisfaction. Each task objective attribute and each customer expectations for satisfaction attribute are assigned a weighting value based on a relative importance of each attribute. The behavioral model of the at least two agents is calculated from a detailed profile of the at least two agents' sales strategies, customer service behaviors, and sales performance. Each sales strategies attribute, customer service behavior attribute, and sales performance attribute is assigned a weighting value based on a relative importance of each attribute. A list of optimal agents is generated based on the match scores of the at least two agents that are above an optimal

threshold. The request from the customer is routed to an available agent on the list of optimal agents).

- **[Claim 16]** the sums of products are scaled sums, and the treatments are scaled treatments (Bushey et al.: Figure 6, col. 11, lines 5-17, Bushey et al. teach a processor where the absolute value of the agent attribute subtracted from the customer call attribute value is multiplied by the weighting value associated with that particular attribute. This is performed for all attributes, and then the sum of the resulting values is subtracted from 100 to get the agent match score. The examiner interprets the value of 0-100 to establish the scale.).

- **[Claim 17]** selecting by processor comprises selecting by processor the determined work item that has a highest sum of the weighted business value and the weighted work item treatment value (Bushey et al.: Figure 6, col. 4, lines 26-29, Bushey et al. teach a processor where the request from the customer is routed to an available agent with the highest match score when the wait time equals a maximum wait time.).

Claims **30, 34, 41-43 and 48-52** substantially recite the same limitations as that of claims 6-8 and 13-17 with the distinction of the recited method being an apparatus, an arrangement, and a computer readable medium. Hence the same rejection for claims 6-8 and 13-17 as applied above applies to claims 30, 34, 41-43 and 48-52.

Allowable Subject Matter

21. **Claims 9-12, 18-24, 27, 29, 31, 44-47, 53-61** would be allowable if rewritten to overcome the rejection under 35 U.S.C. 102(b), on sale bar, set forth in this Office action.

22. **Claims 33, 35** would be allowable if rewritten to overcome the rejections under 35 U.S.C. 101 and 35 U.S.C. 102(b), on sale bar, set forth in this Office Action.

Conclusion

23. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Heck whose telephone number is (571) 272-6730. The examiner can normally be reached Monday thru Friday between the hours of 8:00am - 4:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq R. Hafiz can be reached on (571) 273-6729.

Any response to this action should be mailed to:

Director of the United States Patent and Trademark Office
P.O. Box 1450
Alexandria, Virginia 22313-1450

Or faxed to:

(703) 872-9306	[Official communications; including After Final communications labeled "**Box AF**"]
(571) 273-6730	[Informal/Draft communication, labeled "**PROPOSED**" or "**DRAFT**"]

mch
25 April 2005

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